

the moisture-content. A churn running at one and a half revolutions or less per minute on the working-gear will probably have the butter worked sufficiently before 15 per cent. of moisture has been reached, unless the butter is very soft. This is because the churn is travelling too slowly to carry the water up on to the worker. Two revolutions per minute is a nice working-speed, and I have found the following system of working satisfactory:—

After running off the wash-water, put the churn on the slow gear and salt while running. Then throw in the fast gear and knock the butter together. After putting in the worker, work to the stage where judgment will tell you that it is time to make a moisture test, usually when the butter begins to roll over without the rolls breaking and has a tough appearance. How long this will be will depend upon the season of the year, size of the churning, cream-temperature, &c. Now stop the churn, with the drain-plug down, and take a sample of butter and test it. If it shows nearly 15 per cent., run off the water which will have collected in the bottom of the churn while the test is being made. Then give the churn a few revolutions to dry off the free moisture, and it will be found that when a final test is made the moisture-content has risen about 0.5 per cent. above the trial test. Should the first test show a low percentage of moisture a little experience of the conditions will show how much more working is needed, and it may also be necessary to make a second test before finishing. A further test taken from the box the following day after the butter has stood twenty-four hours in the cool-room will ensure greater accuracy.

The value of moisture-testing depends, of course, on whether it is accurately done, and if proper care is not taken it may as well not be done at all. Considering the amount involved, it is astonishing to see the lack of appliances at some factories, and the rough-and-ready way in which moisture-testing is done. The scales must be of the best and a full set of weights kept, and the mug must have no cavities to hold moisture. The mug must be thoroughly dry before starting, and should be balanced cold, and also be allowed to cool before weighing, after roasting off. The difference between a hot and a cold mug will depend on the mug, and may be up to 0.8 per cent. Reading hot is allowable for a trial test, but is not accurate enough for fine work.

A loss of 1 per cent. through deficiency in moisture will cause a difference of 1.45 per cent. in overrun with a butter containing 82 per cent. of fat. To put it in another way: if you have a butter containing 83 per cent. of fat, 14 per cent. of moisture, and